

# **APPARATUS AND METHOD FOR MODELING QUEUEING SYSTEMS WITH HIGHLY VARIABLE TRAFFIC ARRIVAL RATES**

## **ABSTRACT OF THE DISCLOSURE**

An apparatus and method are provided for modeling queueing systems with highly variable traffic arrival rates. The apparatus and method include a means to associate a value with a pattern of highly variable arrival rates that is simple and intuitive, and a means to accurately model queueing delays in systems that are characterized by bursts of arrival activity. The queueing delay is determined by a sum of queueing delays after first applying a weighting factor to the queueing delay based upon a random arrival rate, and a different weighting factor to the queueing delay based upon a bursty variable arrival rate. The weighting factors are variants of the server utilization. The model facilitates specification of server characteristics and configurations to meet response time metrics.

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